

Patent Abstracts of Japan

PUBLICATION NUMBER : 10020819
PUBLICATION DATE : 23-01-98

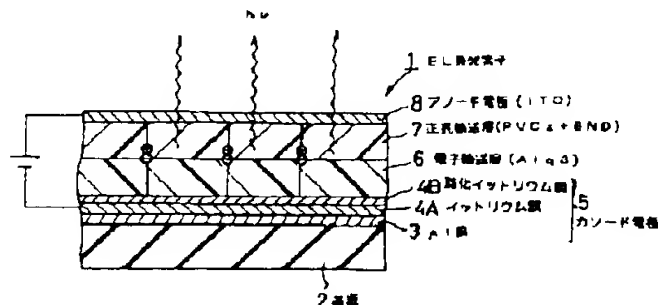
APPLICATION DATE : 08-07-96
APPLICATION NUMBER : 08195203

APPLICANT : CASIO COMPUT CO LTD;

INVENTOR : NAKAMURA OSAMU;

INT.CL. : G09F 13/22 C09K 11/06 H01J 1/14
H01J 17/06 H01J 29/04 H01J 31/12
H05B 33/26

TITLE : LIGHT EMITTING DISPLAY ELEMENT



ABSTRACT : PROBLEM TO BE SOLVED: To provide a light emitting display element which is low in electric power consumption and long in life.

SOLUTION: An Al film 3 is formed on a substrate 2 and a yttrium film 4A and a yttrium oxide film 4B having a crystal system of body centered cubic lattice are formed thereon to form a cathode electrode 5. An electron transfer layer 6, a hole transfer layer 7 and an anode electrode 8 consisting of ITO are successively formed on the yttrium oxide film 4B. The yttrium oxide film 4B is formed on the surface joined to the electron transfer layer 6 of the cathode electrode 5 in such a manner, by which the implantation of electrons from the cathode to the electron transfer layer 4b is made easier. The light emitting display element which is low in the electric power consumption and is long in the cathode life is, therefore, embodied.

COPYRIGHT: (C) JPO

Attorney
Y. F. L. L.
/
10020819

Patent Abstracts of Japan

PUBLICATION NUMBER : 05003080
PUBLICATION DATE : 08-01-93

APPLICATION DATE : 24-06-91
APPLICATION NUMBER : 03151486

APPLICANT : IDEMITSU KOSAN CO LTD;

INVENTOR : NAKAMURA HIROAKI; KUSUMOTO TADASHI;

INT.CL. : H05B 33/22 H01L 33/00 H05B 33/14 // C09K 11/00

TITLE : ORGANIC ELECTROLUMINESCENCE ELEMENT

ABSTRACT : PURPOSE: To improve the breakdown voltage property and to realize an even luminous property by inserting a metal oxide with an insulating property of 4.0eV or higher of energy gap between a luminous layer and a cathode.

CONSTITUTION: By inserting a metallic oxide with the insulating property having the energy gap Eg 4.0eV or higher between a luminous layer and a cathode, the breakdown voltage property can be improved. In this case, the ionizing energy is also increased because of the wide energy gap, it functions as a hole barrier layer, and the luminous efficiency can be improved effectively. And the metallic oxide has a high breakdown voltage property as well as a good insulation, and the surface temperature when the membrane is produced can be suppressed at a low value. The voltage breakdown property is improved regardless of the position where the metal oxide is inserted, but the effect is larger when it is inserted between the luminous layer and the cathode, and furthermore, the attaching efficiency of the cathode and the luminous layer can be also improved. Consequently, an even luminous property is realized, the recombining property of the electrons and holes is improved, and a high efficiency of organic EL element can be obtained without dropping the luminous efficiency.

COPYRIGHT: (C) JPO